PATENT SPECIFICATION

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PROVISIONAL SPECIFICATION.

Improvements in or relating to Electric Water Heating Devices.

I, HARRY WILLIAM DARBY, Builder, of Tudor House, High Street, Eltham, S.E.9, a subject of the King of Great Britain, do hereby declare the nature of this invention to be as follows:—

This invention relates to electric water heating devices and has for its chief object to provide a compact and serviceable heating device which will give a practically instantaneous supply of hot water when required for domestic or similar purposes.

A further object of the invention is to provide an improved switch device constructed in such a manner so as to ensure that the water shall flow through the device before the electric current supply is turned on and so as to ensure that the electric current supply be turned off before the flow of water through the device ceases.

According to the invention the device comprises a tortuous or elongated passageway providing a relatively long path along which the water flows and an electric heating element arranged in said passageway and freely exposed to the water flowing therein. The passageway may conveniently be formed in a plate of electric insulating material which is preferably formed of or moulded from the material known under the registered Trade Mark "Bakelite" or similar synthetic resin material. It is preferred to employ two of such plates having tortuous passages the plates being secured together with preferably a sheet of rubber contacting with each face of the plates and with a sheet of synthetic resin material arranged between the sheets of rubber so as to separate the tortuous passages in each plate, the water being permitted to flow from one plate to the other only through the medium of apertures arranged in the sheets of material interposed between the two plates. It is preferred to arrange the flow of water in such a manner that it enters one plate and passes through the passageway in the plate which passage- material into the adjacent plate and from the centre of that plate the water flows around the passageway to the outside. It is preferred to form the two plates with bosses which are arranged so that when the two plates are secured together for example by means of screws, clamps, or the like the bosses register with one another. One of the bosses is connected to the cold water supply while the other boss is provided with a jet or the like from which the hot water issues. The sheets of material interposed between the two plates may serve to prevent a through flow of cold water through the two bosses. The outer surface of the two plates may be conveniently reinforced by the provision of webs or the like. The plates may be of any suitable form for example circular or rectangular and in the case of a circular plate the passageway would be in the form of a spiral depression and in the case of rectangular plates the passageway would be in the form of a substantially rectangular spiral formation. It is preferred in each plate to provide two electric heating elements the two heating elements being spaced apart from one another by means of a number of lugs or other projections located along the lengths of the passageways. Alternatively, a single heating element may be employed. It is preferred that the two heating elements be fed with current at two points. The electric heating elements may commence for example in the region of the water inlet in one plate and at the water outlet in the other plate and may terminate in each plate just prior to the apertures where the water passes from one plate to the other plate. A suitable terminal may be mounted for example on one side of each plate to which the positive side of the electric current supply may be connected. Embedded in each plate is a strip of copper or other electric conducting material which is arranged so as to conduct the current supply to two pairs of terminals in each plate to which the ends of the electric heating elements are